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ENTOMOLOGICAL NEWS

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Ovoviviparous Mayflies of the Genus Callibaetis (Ephemeroptera: Baetidae)

By GEORGE F. EDMUNDS, JR., University of Utah, Salt Lake City

Of the several records of the occurrence of ovoviviparity in the genus *Callibaetis,* Nedham and Murphy (1924) were first to record the phenomenon in the species *Callibaetis vivipara* Needham and Murphy of Brazil. Doctor Osgood Smith (Needham, Traver, Hsu, 1935) reported a single female of *Callibaetis* sp. as containing well developed nymphs. Berner (1941) described this condition in *C. floridanus* Banks and *C. pretiosus* Banks from Florida and *Callibaetis* sp. from Michigan and gave an excellent description of the nymph within the chorion and after its liberation which occurs at approximately the time of ovopositing. *Cloeon dipterum* Linn., the only ovoviviparous mayfly reported in a genus other than *Callibaetis,* was recorded by Von Siebold as early as 1837.

The author was first attracted to this study in 1943 when he noticed how rapidly *Callibaetis claudiae* Edmunds * established itself in temporary pools. Several female imagos were dissected and some were found to contain eggs with well developed nymphs in them. The nymphs were carefully studied and found to agree with Berner's description of the nymph of *C. floridanus* Banks. Each specimen was found to contain 400 to 450 eggs. It was noted that the eggs of newly emerged imagos do not fill the abdominal cavity, thus considerable room is left for growth.

* This species is in the process of being described by the author. The description will appear in a future issue of this journal.

In Salt Lake City, September 21, 1944, *Callibaetis montanus* Eaton was observed ovopositing in puddles of waste sprinkling water that had accumulated on an asphalt pavement. This water had been standing only a few hours, yet there were a number of tiny white nymphs clearly visible against the black pavement. The eggs hatched within a few minutes after touching the water and the tiny nymphs began moving about in the shallow puddle. Several females were collected from the surface of the water at the time. One of these has two eggs containing well developed nymphs still clinging to the egg valve.

The addition of these two species to those previously reported increases the number in the genus known to be ovoviviparous to six or possibly seven species, depending on whether the New York (Smith) and Michigan (Berner) specimens were of the same or of different species. Thus, Berner's assumption that most if not all of the North American species of the genus are normally ovoviviparous is strengthened by these observations.

Berner noted the correlation of ovoviviparity and longevity in mayflies. He kept a female of *Callibaetis floridanus* Banks alive for eight days, and European workers have kept a female of *Cloeon dipterum* Linn. for twenty-one days. In June, 1944, the author kept two females of *Callibaetis claudiae* Edmunds alive in a flask for ten days and believes their death to have been due to desiccation rather than to any other cause. Berner states, and the author agrees, that this time is more than sufficient for the development of the eggs.

This extended longevity of the females coupled with the comparatively short life of the male produces a peculiar sex ratio in nature. Although the males are by far the most active, field collecting usually produces an overwhelming majority of females. Even though the author has made special efforts to collect male specimens, females are predominant in the collection at an eight to one ratio. Thus the fact that a considerable number of species are known only from female specimens seems to be further evidence of ovoviviparity throughout the genus.

Conclusions

1. It is probable that all species of the genus *Callibaetis* are ovoviviparous.

2. Longevity is necessarily correlated with ovoviviparity in the order Ephemeroptera.

3. The sexual ratio of an ovoviviparous species of Ephemeroptera is abnormal due to the longevity of the female and the comparatively short life of the male.

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Two New Centipeds from Trinidad

By Ralph V. Chamberlin, University of Utah

The types of the two new centipeds described in this article are part of a collection made by A. H. Strickland on Trinidad in the period from Nov. 23, 1943, to Mar. 1, 1944. This collection was sent for identification by Mr. C. F. W. Muesebeck of the U. S. Bureau of Entomology and Plant Quarantine. The types of the new species are at present retained by the author.

In addition to the new forms here described there were in the collection specimens of *Lamyctinus coeculus* Brolemann (St. Augustine), *Lamyctes* sp. (St. Augustine), and *Ityphilus guianensis* Chamberlin (Sangre Grande), and of the millipeds *Siphonotus purpureus* Pocock and *Docodesmus trinidadensis* Chamberlin.

Newportia oligopla, new species

Cephalic plate with two fine longitudinal sulci diverging for-

ward from caudal margin as shown in the figure. (Fig. 1.) Antennae compound of 17 articles; the first two articles and most of the third sparsely setose, the remaining articles, including distal portion of the third, more densely clothed with fine short hairs.

Basal plate with a transverse semicircular sulcus which is somewhat angled at the middle where there is a pit-like depression. Paired longitudinal sulci run from the caudal margin forward, each furcate behind the transverse sulcus at which the branches

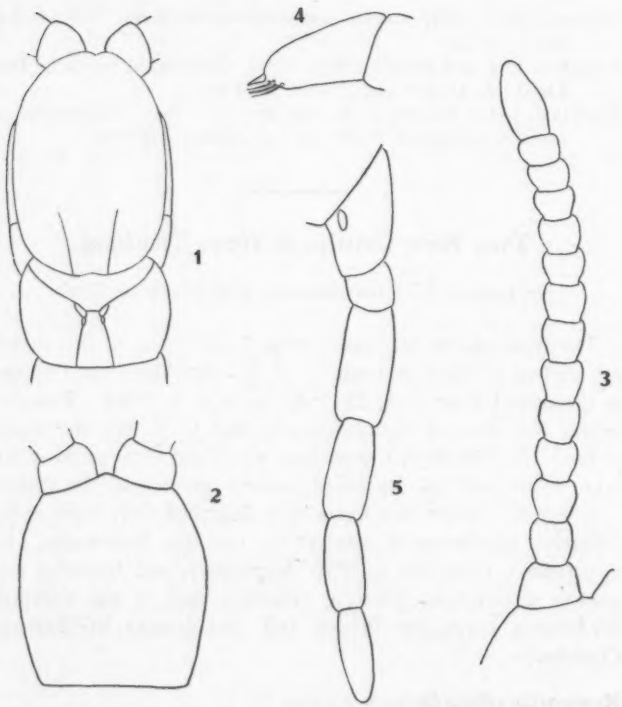

Figure 1. *Newportia oligopola.* Figures 2, 3, 4 and 5. *Leucolinum trinidadense.*

end. (See fig. 1.) Paired longitudinal sulci present on tergites from the second to the twenty-second inclusive.

Prosternal margin with a narrow, gently convex rim on each side, the two halves meeting in an obtuse, reentrant angle at the middle. A single seta a little caudad of the margin on each side. Claws of normal size.

Tarsi of anterior legs not divided. Tibiae of anterior legs with a spine at distal end in anterodorsal position, but with no ventral spine.

Pseudopleural processes moderately long and slenderly acuminate, each terminating in a single point or spine, and with no lateral spine. Poriferous area large, reaching to tergite on each side.

Femur of anal legs with a series of four stout teeth below. Patella with a single tooth at base on mesal side and a much smaller one on ventral face distad of middle. Tibia unarmed, much thicker than first article of tarsus, in length about equal to the first article of the tarsus. Tarsus clawless, composed of eleven long articles of which all but the first are subequal in length, the first decidedly thicker than the others and about equal in length to two and a half of those following it.

Length of largest specimen, 26 mm.

Locality—TRINIDAD, B. W. I.: St. Augustine, in soil of Savannah land, taken between 23rd Nov., 1943, and 1st Mar., 1944.

Distinguished from other species in which the cervical sulcus is angled and has a pit at middle in having no ventral spine on anterior tibiae and tarsi and in having four teeth on the femur.

Genus **Leucolinum**, new

This genus is placed tentatively in the Ballophilidae along with the apparently related and imperfectly known *Taeniolinum*, occurring on St. Vincent. It agrees with the latter genus in having the ventral pores diffuse instead of concentrated in a sharply limited circular or oval area. It is readily distinguished from *Taeniolinum* in having the antennae slender and filiform

instead of short, thick and attenuated. The Panamican *Leptynophilus* also agrees with these two genera in having non-clavate, non-geniculate antennae but differs in having its ventral pores in a sharply defined elliptic area. *Leucolinum* agrees with other members of the family in having the labral margin smooth and wholly lacking teeth over the median arc. Last ventral plate broad.

Coxopleurae each with a single pore. Anal legs clawless. *Generotype: Leucolinum trinidadense,* new species.

Leucolinum trinidadense, new species

This is a pale, almost white, soil-dwelling form.

Head and antennae of forms shown in figs. 2 and 3. No frontal suture evident. Palpi of second maxillae with claws reduced as shown in fig. 4.

Prebasal plate not exposed.

Prehensors with joints unarmed; claws rather small, unarmed, when closed scarcely exceeding the anterior margin of head. Chitinous lines not apparent on the prosternum.

Dorsal scuta bisulcate.

Ventral plates with not definitely defined porigerous area.

Anal legs clawless; the articles proportioned as shown in fig. 5.

Last ventral plate broad. Coxopleurae each apparently with a single pore of moderate size, the limiting rim of which is not sharply sclerotized.

Pairs of legs, 37.

Length, 9 mm.

Locality—TRINIDAD: St. Augustine. Several specimens taken in soil ("detrital silt") from Savannah land between the 23rd of November, 1943, and the first of March, 1944. Collector, A. H. Strickland.

The Species and Races of Hesperotettix in Utah (Orthoptera: Acrididae, Cyrtacanthacridinae)

By Morgan Hebard, Research Fellow, Academy of Natural Sciences of Philadelphia

A study of *Hesperotettix* as found in Utah, based on the collections of the Utah State Agricultural College, has recently been published by my friend the late Professor W. W. Henderson.[1] Reliance on past literature, much too often misleading or actually incorrect, has in that study largely led to a number of serious errors. Extensive collections made by J. A. G. Rehn and the author in Utah, and a number of other important though small series, enable me to list the species and races of the genus in question, though time at present is not available to revise this difficult genus and analyze its species and races which occur west of the Rocky Mountains.

The following alone include parts of Utah in their distribution.

Hesperotettix viridis viridis (Thomas), 1872.

Synonym established by Hebard 1935, *festivus* Scudder, 1897.

Probably present throughout Utah in better watered areas up to (rarely above) 6000 feet, but there found in the more arid environment, usually on Snakeweed, *Gutierrezia* sp., as observed by Henderson. Usually locally abundant, adults are taken as early as June 13, but are in greatest numbers after mid-summer.

The species is highly variable, size, brilliancy and intensity of marking differing widely, largely if not entirely in keeping with the luxuriance and green through light yellowish brown to brown color of the plants in which it lives.

Henderson has recorded *viridis viridis* from nineteen Utah counties and has cited much literature, previous records being erroneous from Iowa, where it is supplanted by *viridis pratensis* Scudder, and from New Jersey, where the even more distinc-

[1] Great Basin Nat., III, pp. 9 to 21 (1942).

tive *viridis brevipennis* alone occurs. Our Utah material was taken at elevations between 2500 and 6500 feet, and is from Logan, Mantua, Box Elder Canyon, Ogden reservoir, Sunset, Salt Lake City, Maple Peak, Big Cottonwood Canyon, Morris, Deseret, Leeds, Washington, Middleton, Harrisburg, Santa Clara, Kanab, Zion Canyon, St. George and the western slope of the Beaver Dam Mountains. This race is absent from most of the desert portions of western Utah, where the genus is rarely encountered, and is known as yet only from the few widely separated localities here given.

The present race is particularly widespread and abundant as well as generally distributed over the Great Plains and Southwest. West of Utah different phases occur, apparently attributable to influences on *viridis viridis* of immediate environment or even adaptation to certain different types of food plant. Whether or not some of these warrant description as previously unrecognized races cannot at present be decided.

Hesperotettix viridis pratensis Scudder, 1897 (atypic toward *viridis viridis*). Reduced to race of *viridis* by Hebard in 1931.

Maple Peak, outlying Wasatch Mountains back of Salt Lake City, 5000 to 6500 feet, ix, 7, 1909 (Rehn and Hebard), 2 ♂, 4 ♀.

Typical over wide areas of the mid-west and eastern border of the Great Plains, but often locally distributed even there, this race occurs even more locally in parts of Wyoming, all but Western Colorado and New Mexico, southern Idaho[2] and southeastern Oregon.[2] Far distant from its other western limits, a condition apparently referable to this race, and the only development of *viridis* there existing, populates locally the mountains to the Pacific Coast at the extreme southwestern portion of California.

Divergence toward or integradation with *viridis viridis* is shown by atypic material of *viridis pratensis* before me from

[2] But often slightly to definitely atypic there.

southern Saskatchewan and Alberta, narrowly on the Great Plains where these races meet, in Montana and at some localities in Wyoming and Colorado, at the locality in Utah here recorded, and locally on the Pacific Coast from southern British Columbia to northern California.

Hesperotettix viridis nevadensis Morse, 1903.

Synonym established by Hebard in 1931, *gillettei* Bruner, 1904, who in 1929 first placed it as a race of *nevadensis* but referred it to racial status under *viridis* in 1931.

As I feared, and as is now seen, the series recorded by Henderson as *curtipennis,* later sent me through his kind cooperation, represents *viridis nevadensis.* His observations, given under the latter name in the same paper, almost postulated this. Ten Utah counties are represented.

Widespread and often locally abundant in Utah, this race often supplants *viridis viridis* where aridity has become progressively more decided, and is in turn supplanted by the much more local and less numerous *viridis termius* in the extensive desert areas of large western portions of the State.

My series, taken up to 7750 feet (Red Canyon), is from Tintic, Orr's Ranch in Skull Valley, Clear Creek divide in Pavant Range 7250 feet, Dog Valley in Pavant Range at 5900 feet, Marysvale at 6000, Kanosh, Beaver Canyon in Tushar Range at 6400, Parowan Summit in Iron County, Red Canyon southeast in Paunsagunt Plateau, Glendale, Bellevue and the Beaver Dam Mountains at 4650 to 5000 feet.

There is very great variation in degree of reduction of the organs of flight present in series rather than in individuals of the same series. The pair from Marysville, Utah, show such reduction to an extreme degree, the tegmina being small lanceolate pads differing from those of *viridis termius* only in that their apices are not truncate. Thus strongest convergence toward that race is indicated.

I have found *viridis nevadensis* in western Colorado, abundant from southern Idaho through Utah and Nevada (where it is,

however, local, often separated by considerable intervals in the desert areas), very scarce in central-eastern and southeastern Oregon, and present, but in even less numbers, in southwestern Oregon east of the Sierras and a small adjacent area in California.

Intergradation with *viridis viridis* is particularly indicated in some series from central southwestern Montana and southern Idaho.

Hesperotettix viridis termius Hebard, 1917.

Described as a race of *nevadensis,* I referred it instead to *viridis* in 1931.

I have this race only from Milford at 4900 to 5000 feet (type locality), Pintura, Frisco at 6300, White Sage Valley at 6600 and Marysvale (one female), Utah.

From outside of Utah I have material from very widely separated localities in arid southern Nevada and California only as far west as the Argus Range.

The small size and truncate tegmina (usually weakly obtuse-angulate emarginate at the end of the humeral trunk) are conspicuous features.

As *Hesperotettix pacificus* Scudder is peculiar to coastal southern California and so is absent everywhere east of the Sierra Nevada, it is unfortunate that Henderson reported his series of *viridis termius* from Utah as that insect.

I have series of *Hesperotettix curtipennis* Scudder from southwestern Colorado, northwestern New Mexico and northern Arizona (where the Grand Canyon is its northern limit). Though the series so reported by Henderson is all representative of *viridis termius,* as I find from examination of that entire series, it is almost certain that *curtipennis* will be found in extreme southeastern Utah.

Thus the Utah forms of *Hesperotettix* are: *viridis viridis, viridis pratensis, viridis nevadensis, viridis termius,* and probably *curtipennis.*

Two New Subgenera of Nomada Scopoli (Hym.: Apoidea) *

HUGO G. RODECK, University of Colorado Museum,†
Boulder, Colorado

Holonomada Robertson 1903, Can. Ent., 35: 177 (new genus, type *Nomada superba* Cresson).

Robertson's *Holonomada* received its name from the entire seventh male tergite, and was characterized in addition by the third antennal segment exceeding the fourth in length. While *superba* was designated as the type, the listed species included *N. vincta* Say, which is hereunder designated the type of *Pachynomada* new subgenus, and *placida* Cresson which is in the present paper included in *Callinomada* new subgenus. When restricted to the *superba* type of insect, *Holonomada* is perfectly valid as a subgenus, but it cannot at present be considered a genus by the writer. A synopsis of the subgenus, for comparison with the subsequently proposed new subgenera, is as follows:

Holonomada Robt.

Large (11–15 mm.), *vernal* (May–July), sexually monomorphic species of *robust* form. *Ground color* of insects black, sometimes ferruginous. Eyes considerably convergent below in facial aspect, more so in females. Both sexes usually with light facemarks. Punctures of mesonotum moderately coarse, dense, and subuniform. Dorsum of prothorax rounded-carinate, considerably below level of mesonotum. *Sides of propodeum with prominent projecting angles* just behind the propodeal spiracle, most readily seen in profile from diagonally above. *Hair of head and thorax moderately long and abundant. Scape of male antennae robust but not globular.* Segment 3 of antennae subequal to or longer than segment 4.

* Extracted from a thesis accepted by the University of Minnesota.
† On leave of absence for military service.

Basal vein usually slightly to considerably basad of transverse median, but sometimes somewhat apicad. Anterior coxae rather broad at apex, without spines. *Apex of hind tibiae with a rather dense fringe of long, slender, usually golden bristles,* similar in both sexes. Impunctate apical margins of abdominal terga extremely narrow. Seventh tergum of males rather long and narrow, tapering, apex rounded and entire.

The characters in italics are those by which this subgenus may be distinguished from *Pachynomada.*

Pachynomada new subgenus

Type species, *Nomada vincta* Say 1837, present designation.

Large (10–13 mm.), autumnal (Aug.–Sept.), sexually monomorphic species of rather slender form. Ground color of insect usually red. Facial quadrangle nearly equilateral, eyes only slightly converging below. Females without yellow facemarks. Punctures of mesonotum fine, very dense and uniform. *Dorsum of prothorax rounded-carinate, only slightly depressed medially.* Hair very short and sparse, nearly absent on mesonotum and (except *adducta*) on sides of propodeum. *Scape of male antennae globular-swollen.* Segment 3 of antennae slightly longer than segment 4. Basal vein interstitial with to slightly basad of transverse median. Anterior coxae narrow at apex, often with a low tubercle, but not spined. *Apex of hind tibiae with 4–6 widely-spaced, short, acute spines,* heavier in the female. Impunctate apical margins of abdominal tergites very narrow. *Seventh tergum of males not very broad,* tapering, rounded at tip, entire or minutely or very shallowly emarginate.

Apparently allied to *Callinomada,* but distinguished by the characters in italics. For comparison with *Holonomada* see italicized characters of that subgenus in the synopsis above.

This subgenus is partially a segregate from *Holonomada* Robertson, receiving *vincta* Say and *zebrata* Cresson, which have been included in that group. *N. besseyi* Swenk belongs

here, as does *adducta* Cresson. It has been the good fortune of the writer to find the male of *N. victrix* Cockerell which likewise belongs in this subgenus, although it has in all the known specimens of both sexes only two submarginal cells. It is likely that *N. morrisoni* Cresson also belongs in this subgenus although the writer has not yet had an opportunity to examine the genitalia. There are undoubtedly other species which should be included, but which have not yet come to attention.

Callinomada new subgenus

Type species, *Nomada antonita* Cockerell 1909, present designation.

Rather *small* (7–9 mm.), autumnal (Aug.–Sept.), sexually monomorphic species. Facial quadrangle nearly equilateral, eyes only slightly converging below. Punctures of mesonotum fine, very dense and uniform. *Dorsum of prothorax sharp-carinate, produced upward at sides and depressed medially,* anterior face more or less concave. Hair very short and sparse, nearly absent on mesonotum and sides of propodeum. *Antennal scape of males obconic, rather slender and curved.* Segment 3 of antennae from about equal to distinctly longer than segment 4. Basal vein interstitial with to definitely apicad of transverse median. Anterior coxae with low, rounded or conical spine rudiments but not actually spined. *Apex of hind tibiae with 3–5 very short, stout, acute, straight spines.* Impunctate apical margins of abdominal terga very narrow. *Seventh tergum of males broad, very broadly rounded,* entire or minutely or very shallowly emarginate.

Apparently allied to *Pachynomada* but distinguished by the characters in italics. This subgenus contains *Nomada snowii* Cresson, *aquilarum* Cockerell, *mutans* Cockerell, *placida* Cresson, and *verecunda* Cresson, as well as the type, *antonita* Cockerell.

New Syrphid Flies

By F. M. HULL, University of Mississippi

This paper describes the new species and varieties of Syrphid flies which have accumulated during the last two years.

Cerioides malleus n. sp.

A small species with club shaped abdomen. Wing with a single brown spot at apex. Face with a thick armed yellow V, narrowly margined by brown.

Male. Length 10 mm. *Head:* vertex, except for the area across and immediately after and before the ocelli and the upper part of the occiput which is brownish red, light yellow. The face and front and cheeks are light yellow, marked with brownish red, as follows: a small spot on the eye margin on the posterior part of the cheeks, a broad band from the lowest portion of the epistoma almost to the eye margins. Also there is an area reaching from the anterior tip of epistoma in the form of narrow linear vittae. These two vittae diverge on either side of the face at the same angle as the band of the lower face diverges and they continue to widen until they become confluent above with a broad, similarly colored area that occupies almost exactly one half the width of the face below the antennae, and which area also extends half the length of the face beneath the antennae. This upper block of reddish brown encloses the lower half of the short front; it contains just below its middle a pair of pale yellow ventrally rounded triangles narrowly separated from one another. Also the large red brown block sends a short, sharp, small projection into the yellow of the lateral portion of the face. Finally the yellow triangle which remains upon the lower half of the face is narrowly divided upon its upper portion by a linear brown stripe. The central area is enclosed by the brown. The cheeks and all of the lower portion of the face are silvery pubescent; the upper block of brown has minute brown patches bare of pubescence. The antennae are missing. The frontal prominence is completely

lacking in this species. *Thorax:* brownish red, a little darker upon the central portion of the mesonotum which, however, is not black, but is darker due to the very thick accumulation of microscopic black setae. The lateral half of the transverse suture is margined with pale yellow which continues down narrowly upon the posterior part of the mesopleura, across the middle of the sternopleura almost to touch the arcuate yellow stripe upon the upper part of sternopleura. There is a wider, pale yellow stripe across the middle of the metapleura. The humeri, the narrow subapical margin of the scutellum and a long slender, narrow margined vitta upon the posterior part of the mesonotum which runs from the suture slightly obliquely almost to post calli are pale yellow. The pile of the mesonotum, though exceedingly short, is all golden and the reddish color is overlaid especially laterally and particularly upon the pleura and upon the coxae as well as the legs with quite microscopic silvery pubescence. *Abdomen:* club-shaped, rather short, the first two segments almost as long as the remaining three and greatly narrowed. The abdomen is narrowest just before the middle of the second segment, but the apex of that segment is considerably wider than its base which in turn is more narrow than the base of the first segment. The hypopygium is quite large, protuberant and bluntly rounded and not greatly smaller than the third segment. The third and fourth segment and the protuberant hypopygium form a large, oval, broadly rounded club. The abdomen is reddish brown, a little darker upon the third segment, its posterior margin laterally and narrowly, the whole posterior margin of the cylindrical second segment and the whole wider posterior margin of the third segment pale yellow. There is an obscure, transverse, narrow, dorsal and ventral fascia of yellow across the apical portion of the hypopygium. *Legs:* brownish red, the basal sixth of the hind femora and the basal portion of their tibiae pale yellow. The brown of the tibiae, however, extends almost to the base ventrally. The hind tarsi are lacking, the anterior tarsi quite dark reddish brown, the apical segment very pale, the middle tarsi light

brown. *Wings:* hyaline, veins pale brown. There is a sharp, acute bend in the third vein, somewhat less than a right angle; it is without spur and all of the remainder of the submarginal cell, after the completion of the bend, together with most of the marginal cell above it is light brown in color.

Holotype: one male. Rikatla, LOURENCO MARQUEZ (H. Junod) April 1915. In the Cornell University collection.

Mallota separata n. sp.

Flies with the male eyes separated narrowly; abdomen black pilose beyond the second segment; related to *posticata* Fabr.

Male. Length 15 mm. *Head:* vertex protuberant, shining black and apparently quite bare. There is no evidence that pile has been denuded for there is yellow pile on the posterior part of this prominence and extensive, long, sulphur-yellow pile on the posterior part of the occiput. There is also a single row of long black hairs, widespread, nearer the eye margins and upon the occiput. The lateral half of the front is sparsely white pubescent with a few long white hairs and more black ones. The triangular, middle, anterior area of the front is polished, bare, black and with a linear, median crease on the upper half and a transverse crease across the lower middle. The eyes are definitely separated by from two to three times the width of the anterior ocellus. The face and cheeks are shining black, silver pubescent with silvery pile. The antennae are dark brown, the arista pale yellow, black apically, white at apex. *Thorax:* shining brownish on the sides and anteriorly, due to pollen, the mesonotum is broadly black, except on the anterior margin. The pile of the mesonotum is light sulphur-yellow with only a few black hairs in the center. The scutellum is light brown with narrow blackish base, the pile is entirely sulphur-yellow; there is similar pile upon the post calli and widely over the mesopleura, pteropleura and sternopleura. *Abdomen:* shining blackish with light yellow pile upon the first segment except its anterior corners; the yellow pile is continued upon the base of the second segment, triangularly, and upon the basal half of the sides. The remaining pile of the abdomen is thick, long and

entirely jet-black including that upon the hypopygium. *Legs:* all of the femora shining black, the tibiae very dark brown, the tarsi light reddish-brown. The pile of the hind femora, except a few inner basal hairs and their tibiae and tarsi, is entirely black. The femora are considerably thickened and arcuate, their ventral surface concave with a subapical, ventral protuberance and black, bristly, tufted pile. The hind tibiae are flattened and somewhat arcuate, but without the thick, abundant black pile found in the middle of the ventral surface in *posticata* Fabricius. *Wings:* hyaline with a faint, small brown cloud near the origin of the second and third veins.

Holotype: a male. Oxford, MISSISSIPPI, May, 1942, (F. M. Hull).

Mesogramma arethusa n. sp.

A small fly, the abdomen shining light orange brown, the third and fourth segments with four black vittae. Related to *boscii* Macquart.

Male. Length 5.5 mm. Face and front yellow, the cheeks blackish behind, the vertex coppery red, shading into brassy, the vertical triangle metallic black. The upper pile of the vertex is entirely black and the very sparse pile of the front whitish. The first two antennal segments are pale brown, the third wholly light orange, the arista brown and rather thickened at the immediate base. The middle indentation of the occiput marked; the occiput is bluish black with silvery pubescence and pile of which there are several rows. *Thorax:* blackish and brassy brown before the scutellum and with some evidence of similar vittae but the mesonotum is however discolored. The humeri are dark brown, linearly yellowish behind; the mesonotal margin between the humeri and the transverse suture is wholly black but dull yellowish brown behind the suture and over the post calli and again upon the margin of the scutellum; disc of scutellum greenish black. The upper sternopleura and the posterior half of the mesopleura is yellow, only the former white pubescent; propleura black. *Abdomen:* narrowly oval

with nearly parallel sides; shining black. The extreme anterior corners of the first segment and a median, medially subinterrupted and sublaterally subinterrupted fasciae are orange in color. Third and fourth segments are shining orange brown; down the middle run two slender, linear, narrowly separated, anteriorly divergent vittae reaching the base of the segments. The posterior corners of these segments are black and from the medial, anterior angle of this black area a wider vitta reaches forward the full length of the segment and from the outer anterior angle of this same black there runs along the margin of the segment a diminishing extension of the black ending rather sharply at about one-third of the distance from the base of the segment. The fifth segment has a slender medial vitta and a wider sublateral one on either side. The hypopygium is orange brown with a prominent, sharply delineated, shining black spot to the right. *Legs:* pale brownish yellow, the hind femora with a wide, distinct, black band occupying most of the posterior half except the apex. The hind tibiae are blackish except the extreme apex and the narrow base, their tarsi dark brown, the second and third segments barely lighter. *Wings:* hyaline, stigmal cell dilute brown.

Female. The front is metallic bluish black, minutely wrinkled but not striate; vertex similar to male; frontal pile blackish, the margins of the front linearly yellow, face yellowish with a divergent, obscure brownish stripe beginning just below the antennae; third antennal segment dark brown on at least the upper half. *Thorax:* mesonotum and scutellum and pleura similar to male. *Abdomen:* wider, more oval, the fascia of the middle of the second segment scarcely interrupted sublaterally and not at all medially. Medial vittae of third and fourth segments rather more extensively produced upon the lateral anterior ends of these vittae. The whole anterior portion of these vittae is somewhat larger and the lateral margin of all of the segments is black throughout, least so upon the second segment at the ends of the yellow fascia. The yellow of the abdomen is less of an orange color, has a rather extensive opaque pattern

which comprises most of the vittae except their narrow posterior apices. *Legs and wings:* similar to the male, the stigmal cell almost hyaline.

Holotype: a male, from Englewood, FLORIDA (J. G. Needham). Allotype: one female, Englewood, Florida.

The pattern of the female suggests *boscii* Macquart but besides the lateral and sublateral vittae posteriorly, it also differs in the divergent stripe of the face and the hind tibiae which are blackish almost throughout. Furthermore, the notopleura are black, and in *boscii* are yellow vittate. The male of *arethusa* differs even more from the male of *boscii* Macq.

(*To be continued*)

Additional Notes on Papilio Aristodemus Ponceana Schaus (Lepidoptera: Papilionidae)

By W. F. HENDERSON, Chicago, Illinois

The article in the February (1945) issue of ENTOMOLOGICAL NEWS brought in several memoranda concerning ponceana. One of these was in the form of a correction concerning specimen No. 24 in the published table, but the other memoranda brought information in regard to additional specimens. All suggestions have been followed up and in so far as replies have been received, the following notes bring the data concerning ponceana up to date:

No. 24. A correction should be made in the table as published in February: Locality: Key Largo, Florida; Date: August, 1943; Present Possessor: R. Chermock, Coral Gables, Florida.

Additional specimens:

No. 25. ♂. Miami, Florida; May 21, ——, Wm. Schaus. Specimen now in the collection at Cornell University, Ithaca, New York. This specimen bears an authentic label indicating its possession by Jacob Doll, but Dr. W. T. M. Forbes is of the opinion that it is another one of the original Schaus specimens.

There is no year of capture indicated on the label. Cornell University received this specimen from the collection of Addison Ellsworth (Johnson City, N. Y.), whose record book shows that he obtained it from William Reiff.

No. 26. ♂. No. 27. ♀. Lower Matecumbe Key, Florida; May, 1935; Mrs. C. N. Grimshawe; Present Possessor: R. Chermock, Coral Gables, Florida.

No. 28. ♀. Lower Matecumbe Key, Florida; May 28, 1935; Mrs. C. N. Grimshawe. (Believed to be a bred specimen.)

No. 29. ♂. Same data as No. 28 except date: May 30, 1935.

No. 30. ♀. Lower Matecumbe Key, Florida; May 19, 1936 (bred); Mrs. C. N. Grimshawe.

No. 31. ♂. Same as No. 30 except date: June 10, 1936 (bred).

No. 32. ♀. Key Largo, Florida; June 24, 1940; Mrs. C. N. Grimshawe.

No. 33. ♂. Key Largo, Florida; May 18, 1941; Mrs. C. N. Grimshawe.

Specimens 28–33 inclusive are in the possession of Mr. Kent H. Wilson, Fort Worth, Texas.

This brings the total number of specimens up to 33, the last recorded capture being in August, 1943.

The writer wishes to express his thanks to those who have so kindly cooperated in making this record more complete, and it is hoped that any other collectors who have ponceana will write in and report them.

Personals

Dr. Andrey Avinoff, Director of the Carnegie Museum at Pittsburgh since 1926, has resigned for reasons of health. The title of emeritus has been conferred upon him.

Dr. Joseph C. Bequaert has been appointed head curator of recent insects at the Museum of Comparative Zoology at Harvard University.

Entomologists of Netherlands Indies. According to Dr. J. C. Bradley, information received from the Netherlands Red Cross is to the effect that, as of 28 October, 1943, Jacobus Van der Vecht was a military internee of the Java camp. They have no information concerning Dr. J. G. Betrem, who, at the outbreak of hostilities, was Agricultural Entomologist in Semarang, Java.

Notes and News in Entomology

Under this heading we present, from time to time, notes, news, and comments. Contributions from readers are earnestly solicited and will be acknowledged when used.

How Long Do Entomologists Live? An examination of Mathilde M. Carpenter's "Bibliography of Biographies of Entomologists" (American Midland Naturalist, vol. 32, no. 1, p. 1–116, 1945), discloses among other things, the birth and death dates for 2,187 entomologists born between 372 B.C. and 1920. Both amateur and professional entomologists are included and although some of the entomologists had other occupations, the list as it stands may be considered as representing an occupational group of white males for the entire world, and the mortality of the subjects as being due to all causes.

It is of interest to note that the average age at death for the entire 2,187, was 65.48 years. The largest number of deaths occurred in the age group 70 to 74. Thirty per cent of the 2,187 died before reaching 60 years. Of the remaining 70 per cent, 23 per cent died between the ages of 60 and 69, 29 per cent between 70 and 79, and 18 per cent between the ages of 80 and 94.

Of special interest are the 1,600 entomologists who were born between 1500 and 1859. The average age at death for this group was 69.09 years. When the period from 1500 to 1859 was divided into smaller periods it was found that the deviations from 69.09 were small. In other words, all during the years

from 1500 to 1859 entomologists continued to live an average of 69 years.

Life tables for early times are fragmentary and rather incomplete, but the expectation of life at birth in Breslau for the years 1687 to 1691 was about 34 years. In Carlisle, England, 1780–1787, the expectation at birth was close to 40 years. In continental United States in 1910, it was about 50 years and in 1940 it was 62.94 years for white males and 67.31 years for white females.

All during these times, however, when the expectation of life at birth was low for populations in general, entomologists continued to live an average of 69 years.

In every population from early times to the present, a certain part of the population, by reason of parentage and environment, has always lived many years beyond the average for the balance of the population, and it is apparent that entomologists for the most part have always been recruited from among that portion of the population that lived the longest. Karl Pearson concluded many years ago that from 50 to 75 per cent of the general death rate is determined by the forces of heredity. If this is correct, most of the credit for living long lives should go to the parents of the entomologists.—HARRY B. WEISS.

Current Entomological Literature

COMPILED BY THE EDITORIAL STAFF.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the current or preceding year unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of Journals given at the end of the literature. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

GENERAL—On the retention of ii or i in specific patronymic names. [87] 1: 147–58. Use of the name of a composit genus for a component part requiring a name, where the name so used was published on, or before, 31st Dec. 1930. [87] 1: 159–70. Designation of genotypes for genera published with identical limits on, or before, 31st Dec. 1930. [87] 1: 171–78. Designation of genotypes by Latreille, 1810. [87] 1: 179–90. **Acosta Solis, M.** Los climas en la regiones naturales del Ecuador. [Flora, Quito] 4 (11–12): 139–208. **Allen, A. A.**—Nomenclature—Another plea for realism. [8] 71: 81–83. **Balfour-Browne, F.**—Further to the problem of a changing nomenclature. [8] 71: 108–9. **Bradley, J. C.**—Amateurs. [19] 40: 9–10. **Campos, F.**—Fauna entomologica de Guayaquil en vertiginosa exposicion. [Flora, Quito] 4 (11–12): 125–34. **Chamberlin & Lawson**—Mechanical trap for the sampling of aerial insect populations. [Mosquito News] 5: 4–7, ill. **Comstock, W. P.**—Violet Harriet Dos Passos and her N. American moths. [6] 53: 47–48. **Davis, William Thompson**—Obituary notes. [Mus. Bull. Staten Id. Inst. A. & S.] 27 (No. 3), 17 pp., ill. **Dobzhansky, Th.**—Genetics and macro-evolution. (A review of Simpson, G. G., Tempo and mode in evolution.) [Jour. Hered.] 36: 113–15. **Fletcher, F. C.**—Sericulture, its successes and failures. [118] 18: 73–75, cont. **Grensted, L. W.**—Formation and gender of generic names: a further note. [8] 71: 118. **Peterson, A.—Some insect infants.** [54] 60 (6): 426–42, ill. **Riley, N. D.**—Problem of "anting" in birds. [109] 10: 13–14. **Romney, V. E.**—Effect of physical factors upon catch of the beet leaf hopper (Eutettix tenellus (Bak.)) by a cylinder and two sweep-net methods. [84] 26 (2): 135–47, ill. **Sailer, R. I.**—Bite of a lacebug, Corythucha cydoniae. [103] 18: 81–82. **Simpson, G. G.**—Tempo and Mode in Evolution. N. Y. Columbia Univ. Press, 1944, 237 p. $3.50. Review by C. L. Hubbs in [90] 79: 271–75. **Solomon, M. E.**—Tyroglyphid mites in stored products. Methods for study of population density. [20] 32: 71–74. **Teale, E. W.** The sayings of William T. Davis. [19] 40: 3–6. **Vouk, A. M.**—Aphidae as vectors of the mosaic disease on onions. [Microbiology, Moscow] 13 (4): 180–84. (Russian, English summary.) **Wainwright, C. J.**—Nomenclatorial problems. [8] 71: 79–80.

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[7] 38: 14–32. **Crombie, A. C.**—On competition between different species of graminivorous insects. [Proc. R. Soc. London] B, 132: 362–95. **Daggy, R. H.**—Biology and seasonal cycle of Anopheles farauti on Espiritu Santo, New Hebrides. [7] 38: 1–13. **Dennell, R.**—Insect epicuticle. [31] 155: 545. **Goldschmidt, R. B.**—Evolution of mouth parts in Diptera; a counter critique. [55] 21: 41–47. **Grosch, D. S.**—The relation of cell size and organ size to mortality in Habrobracon. [Growth] 9: 1–17. **Hawley & Dobbins**—Distribution and abundance of the Japanese beetle from 1935 through 1943, with a discussion of some of the known factors that influence its behavior. [6] 53: 1–20. **Lees & Picken**—Shape in relation to fine structure in the bristles of Drosophila melanogaster. [Proc. R. Soc. London] B, 132: 396–423, ill. **Marcus, H.**—La base anatomica del olfato topoquimico. [Acta Zool. Lilloana] 2: 141–45, ill. La respiracion de las hormigas. [Acta Zool. Lilloana] 2: 307–20, ill. **Rau, P.**—Size of the cell and sex of the wasp in Ancistrocerus catskillensis. [7] 38: 88. **Reynolds, J. M.**—On the inheritance of food effects in a flour beetle, Tribolium destructor. [Proc. R. Soc. London] B, 132: 438–51. **Roth, L. M.**—Odoriferous glands in the Tenebrionidae. [7] 38: 77–87, ill. **Schrader, F.**—The cytology of regular heteroploidy in the genus Loxa. (Pent.) [57] 76: 157–78. **Tiegs, O. W.**—Post-embryonic development of Hanseniella agilis (Symphyla). [53] 85: 191–328, ill. **Villee, C. A.**—Phenogenetic studies of homoeotic mutants of Drosophila melanogaster. III. The effects of temperature on the expression of bithorax—34E. [90] 79: 246–58. **Wellington, W. G.**—Conditions governing the distribution of insects in the free atmosphere. II. [4] 77: 21–28. **Whiting, A. R.**—Effects of X-rays on hatchability and on chromosomes of Habrobracon eggs treated in first meiotic prophase and metaphase. [90] 79: 193–227, ill. **Williams, C. R.**—Prolongation of larval-pupal development in Drosophila melanogaster and its effect on facet number. [90] 79: 259–70. **Williams, J. L.**—Anatomy of the internal genitalia of some Coleoptera. [10] 47: 73–91, ill. **Yeager & Heishman**—Some effects of antisera on larvae of the southern armyworm, Prodenia eridania. [7] 38: 45–52.

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Hispaniola. [26] 95 (4): 359–418, ill. (*k). **Carter, A.**—This bug is a borgia (Dermacentor sps.). [Frontiers, Phila.] 9: 132–34, 160, ill. **Curran, C. H.**—Ticks and human welfare. [Nat. Hist. New York] 54: 283–85. **Ewing, H. E.**—Mites of the U. S. Antarctic Service Expedition 1939–41. [Proc. Amer. Phil. Soc.] 89: 296. **McGregor, E. A.**—A new gen. and sp. of tetranychid mite from California. [10] 47: 100–2, ill. **Mulaik, S.**—New mites in the family Caeculidae. [Bull. Univ. Utah] 35 (17): 23 pp., ill. **Schubart, O.**—Os diplopodos de Pirassununga (Argentina). [Acta Zool. Lilloana] 2: 321–440, ill. (*S). **Solomon, M. E.**—(See under General.) **Tiegs, O. W.**—(See under Anatomy.) **Wang, Y. M.**—Preliminary report on Chilopoda at Ishan, Kwangsi and Meitan, Kweichow. [6] 53: 63–67.

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HEMIPTERA—Beamer, R. H.—New sp. of Dikraneura from Arizona (Cicadel). [103] 18: 83–84. **Beamer & Lawson.**—Rev. of the gen. Stragania in Amer. north of Mexico (Cicadel). [103] 18: 49–66, ill. (*). **Caldwell, J. S.**—Notes on Issidae from Mexico (Fulgorid). [7] 38: 89–120, ill. (k). Neotropical lanternflies of the gen. Phrictus in the U.S.N.M., with descr. of 4 n. sps. [50] 96: 177–84, ill. **Fennah, R. G.**—New lanternflies from So. America (Fulgorid). [50] 96: 95–105, ill. Characters of taxonomic importance in the pretarsus of Auchenorhyncha (Homop.). [10] 47: 120–28, ill. **Jensen, D. D.**—Notes on the synonymy, nymphs and distribution of Heteropsylla texana (Psyllid). [55] 21: 74–76. **Metcalf, Z. P.**—General catalogue of the Hemiptera, Fasc. IV, pts. 4–7. Fulgoridae, Derbidae, Achilixiidae Meenoplidae, Kinnaridae. 252 pp. **Romney, V. E.**—(See under General.) **Sailer, R. I.**—Status

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